How Can DoD Benefit from the New ISO 9000?

ISO 9000 — Promoting Standards for Acceptable Performance Throughout the World

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A Word From the Author
Comments in this article are based on the Final International Draft Standards, ISO/FDIS 9001:2000 and ISO/FDIS 9004:2000. This final and official standard was released Dec. 28, 2000.

The International Organization for Standardization, based in Geneva, Switzerland, has been developing, distributing, and maintaining ISO (Greek for equal) standards since 1947. There are over 10,000 ISO standards, covering everything from manufacturing processes and materials, to medical devices and photo film speed. These standards, which are directives for acceptable performance, are in use throughout the world.

A Single Quality Standard

In 1987, the International Organization for Standardization formed an International Committee to develop and maintain ISO 9000. The timing of this effort coincided with the formation of the European Union, and a key goal was to harmonize the many different quality standards of these countries into a single quality standard.

The International Committee originally intended to update ISO 9000 every five years. However, challenged with overcoming the differences in language, cul-

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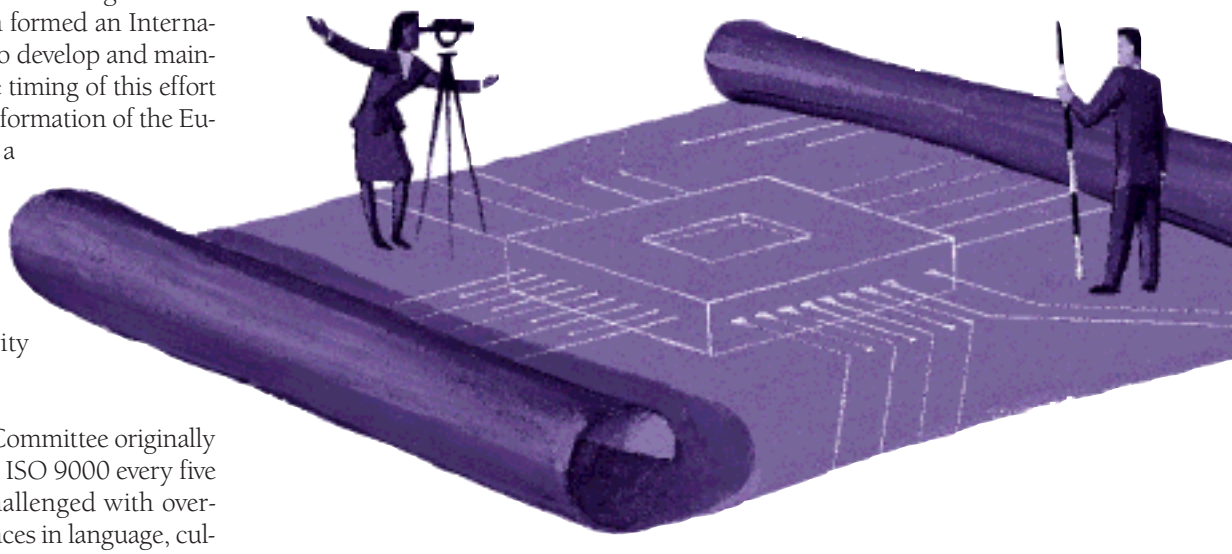

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ture, and levels of industrial development, the member nations took seven years to reach agreement on the first update, the 1994 version of the ISO 9000 standards. (The 1987 and 1994 ISO International Quality Standards consisted of three requirements standards, along with a large array of supporting and guideline standards.)

By July 2000, the International Organization for Standardization had issued over 340,000 certifications of registrations for ISO 9000. These certifications (registrations) document that an International Organization for Standardization-certified third party Registrar has conducted an audit and found the organization in compliance with the requirements of the applicable ISO 9000 standard.

Companies ranging from large manufacturing organizations to small service offices such as a doctor's office, have achieved ISO 9000 registration. Numerous additional organizations throughout the world use the standard as a guide to quality, without applying for registration. The United States has approximately 40,000 companies with certificates of registration. Since the first ISO 9000 standard was published in 1987, many Department of Defense contractors have used the international quality standards for managing their quality systems, both with and without formal registration. In 1994, when DoD cancelled the military quality and inspection specifications, many defense contractors who previously used the military standard filled the vacuum with the adoption of ISO 9000.

The Present Version

The ISO 9001:1994, "Model for Quality Assurance in Design, Development, Production, Installation and Servicing," describes the requirements for a Quality Assurance System. It contains 20 clauses that cover all aspects of an organization from contract review, to purchasing, design, process controls, and inspection and test. It requires users to document their quality assurance system and implement the activities that, when followed, should ensure appropriate management of quality assurance.

How well adherence to the ISO 9000 standard results in "quality" has been a matter of debate. One major company observed that documenting one's processes and ensuring that the documented processes are followed, as required by the ISO standard, could result in an ISO-certified company producing excellent but useless concrete life jackets. That company went on to develop its own quality system that placed emphasis on continuous process improvement and customer satisfaction, areas in which many felt the ISO standard was lacking.

Students coming through the Defense Systems Management College's Program Management and Manufacturing Management courses have made similar observations about ISO 9000 implementation since the standard was first distributed in 1987:

> "What good is ISO 9000 certification? I see the banner in the lobby that says they are ISO-certified, yet every pump they install on my ship is defective."

> "The contractor says I cannot audit their facility; they are ISO 9000-registered, and they feel that should be good enough. However, I continue to have major quality problems — three aircraft were grounded due to defective jet engine parts."

This concern about the quality performance of registered companies has some foundation. The depth and completeness of audits can vary from Registrar to Registrar. Many of us with audit experience have encountered significant nonconformances with registered companies, sometimes immediately after the company has passed a Registrar's audit. Many students from Defense Contract Management Agency (DCMA), charged with the responsibility to perform compliance audits of defense contractors, have also noted this lack of consistency in the standard among registered quality systems.

Under the 1994 version of ISO, companies were often evaluated for the quality of their Quality Manual, the documentation of their required procedures, their implementation of internal audits, and demonstration of management responsibility. While this version of the standard contained corrective and preventive action and quality status clauses, these clauses were seldom used to measure defect levels and product conformity.

However, it is, and has always been, top management's responsibility to commit and lead an organization to achieve excellence. Those companies not committed to or capable of achieving continuous improvement could approach ISO certification not as the basis for a sound quality management approach, but as a paperwork drill. The chart on the next page depicts the latest version of the ISO standard, which seeks to establishe a basis for continuous improvement, with a fundamental shift in how the standard requires a company to approach higher levels of quality management.

The most obvious indicator of a shift in the ISO approach is the change in the title of the standard. While the ISO 9000:1994 series was entitled "Quality Assurance," the new version is called "Quality Management." The International Organization for Standardization released the new standard as a "consistent pair" of quality management standards: ISO 9001:2000, "Quality Management Systems — Requirements" and ISO 9004:2000, "Quality Management System — Guideline for Performance Improvement."

The first standard, ISO 9001:2000, describes the required processes and procedures a company must have in place to be registered as meeting the quality system. The second, ISO 9004:2000, describes how the company should go about achieving those requirements. This "consistent pair" of standards work together to provide both the requirements and guidelines for improvement to ensure the company achieves and maintains quality. These standards are also

compatible with the International Environmental Management Standards, ISO 14000. Previously, attainment of both ISO 9000 and ISO 14000 required two complete and separate audits. The new standard will require only one audit of those requirements that overlap the two standards, reducing costs associated with certification.

The scope of the new ISO 9000:2000 can be seen below in the Model for Continual Improvement of the Quality Management System. The revised standard covers product realization (from concept, through production, to delivery to the customer), along with measurement, analysis, and improvement.

The intent of the revised standard is to require companies to manage quality as a fundamental focus of their business. To achieve this, ISO 9001:2000 organizations will be required to emphasize and demonstrate quality in four overlapping focus areas:

Customer Focus

The new version of the standard requires the company to have a customer satisfaction feedback system in place, to show corrective actions taken, and to document the implemented improvements. This area is a mandated topic for management reviews, ensuring management involvement.

Product Realization and Conformity

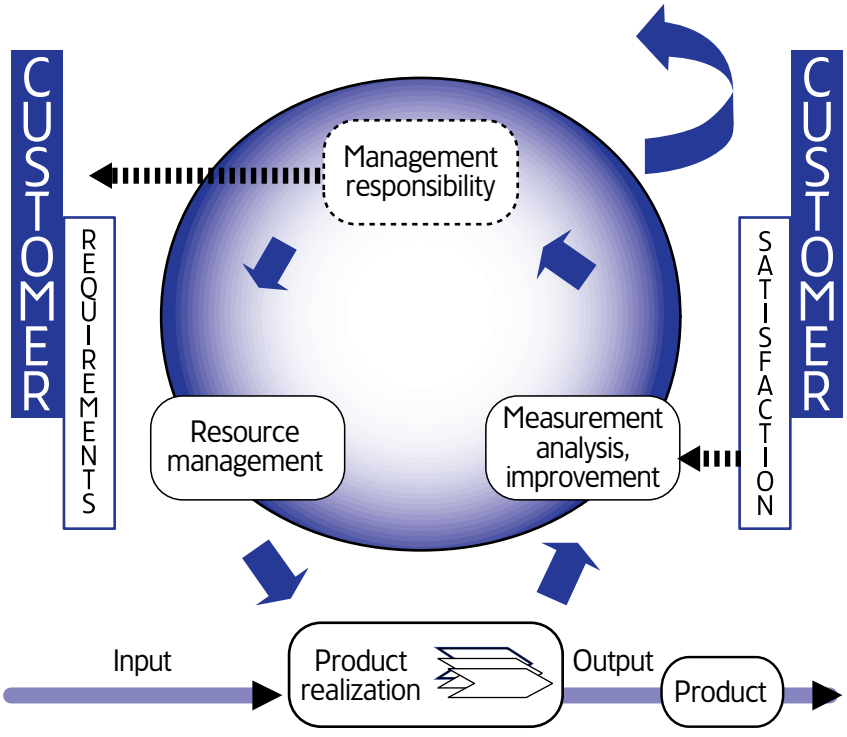
Under the revised standard, a company must understand and describe the sequence of processes and sub-processes required to achieve a product, and identify the required verification, validation, acceptance criteria, and records related to product realization and conformity.

Process Management

This focus area covers the identification, sequence, and interaction of the quality management system. It includes monitoring, measuring, and analyzing processes and actions for continual improvement. Process Management extends into the product realization processes.

Resource Management

This area encompasses ensuring employee competence to produce quality product based on education, training, skills, and experience. It covers how the company is organized to identify and manage the facilities and work environment to achieve conformity of product.



Model for Continual Improvement of the Quality Management System

ISO 9000:2000 has other format and substantive changes. However, the four major areas of emphasis cited will improve confidence of stakeholders of organizations that adopt ISO 9001:2000. A company will need more than just a well-documented quality system to provide a basis for product quality. It will have to demonstrate process performance and product conformance and show evidence of customer satisfaction and continual improvement.

The new ISO 9001:2000 and 9004:2000 consistent pair focuses on eight principles:

- Customer focus
- Leadership
- Involvement of people
- Process approach
- Systems approach to management
- Continual improvement
- Factual approach to decision making
- Mutually beneficial supplier relationships

These principles broaden the depth with which a company must approach quality to achieve certification.

How Can DoD Better Use the New Standards?

What does this all mean to the DoD and our contractors? The organizations that adopt ISO 9001:2000 will have to demonstrate that their product realization processes are effective and producing quality product. They will have to demonstrate that product conformity or critical characteristics, in terms of defect levels (defects-per-million opportunities, etc.), are acceptable; that plans are in place for improvement; and, as time goes on, that improvements are actually demonstrated.

To make the most of the new version, the Department of Defense should use ISO 9001:2000, or other similar non-governmental quality standards, to the maximum extent practical for contracts requiring higher-level quality assurance provisions. The appropriate implemen-

tation of Quality Management System Requirements should result in overall improvement of all parts, materials, and components going into our weapon systems. Contractual acquisitions for commercial and non-complex items would not normally require higher-level quality assurance requirements such as ISO 9001:2000. However, buying activities should work closely with DCMA to ensure a systematic approach for determining when and how higher-level quality requirements will be contractually implemented.

If the requirements of the quality management system are being fully met — processes are in control, product conformity levels are at acceptable levels, and substantial plans for continual improvements are in place — DCMA should continue its current practice of issuing a Statement of Qualification to contractors found in compliance with higher-level contract quality system standards, e.g., ISO 9001:2000.

DCMA should work closely with buying activities and the defense industry via management councils to address contract quality system requirements. DCMA should also continue participating in key quality-focused councils, boards, and associations to promote consistent enforcement of contractual quality requirements. Interpretation of ISO 9001:2000 language should also be addressed through internal DCMA guidance and DSMC training venues.

It will take some time for the new ISO International Quality Management Standards to "shake out." There will be different interpretations of the requirements by consultants, auditors, and ISO Registrars.

It may take years for some companies to realize that a well-documented quality system is not all that is required. However, the organizations that use the "consistent pair" of standards, with a process approach by committed management, should achieve excellence in product and service performance.

Editor's Note: The authors welcome questions or comments on this article. Contact McGovern at **mcgov@erols.com.**

DSMCAA 2001 Symposium to Feature Golf Tournament, Anniversary Celebrations

The Defense Acquisition University (DAU), in partnership with the Defense Systems Management College Alumni Association (DSMCAA), is sponsoring the first ever DAU-DSMCAA Golf Tournament. Anticipated as a future annual event, the Tournament will be held in conjunction with the DSMCAA 18th Annual Symposium, June 4-7, 2001. The 2001 Symposium also marks two major milestones: DAU's 10th Anniversary as a DoD institution of acquisition education and training; and DSMC's 30th Anniversary as an educational institution promoting systems management excellence through education, research, consulting, and information dissemination.

In addition, DAU-DSMC will host an Open House of the main Fort Belvoir, Va., campus. Mark your calendars now and look for more information on the Golf Tournament and Symposium in future issues of *Program Manager.* Future updates on the Golf Tournament and Symposium will also be added to the DAU and DSMC Web sites at:

http://www.dau.mil
http://www.dsmc.dsm.mil

The Golf Tournament and Symposium will be held at Fort Belvoir, Va., on the following dates:

June 4
First Annual DAU-DSMCAA Golf Tournament

June 5
Anniversary events, workshops, speakers, panels on current acquisition issues

June 6
Defense Acquisition Workforce Improvement Act (DAWIA) Segmentation Day and Dinner (DAWIA segments will be reviewed by a panel and speakers)

June 7
"Strategic Partnerships in Progress" Presentations — Developing Partnerships with DoD, Industry, and Legislative Branch